

## ABSTRACT OF THE DISCLOSURE

A surface plasmon resonance (SPR) sensor (10) is disclosed. The sensor (10) includes a light source (18) and polarizer (20), which emit polarized light toward a surface plasmon layer (22). Light is reflected from the surface plasmon layer (22) at many angles, toward a photodetector array (26) via a mirror surface (24). The surface plasmon layer (22) includes a resonance film (30), such as gold, and a hard protective layer (32). The hard protective layer (32) is of a thickness below the sensing range (R) of the SPR sensor (10), and protects the resonance film (30) from damage. Materials useful as the hard protective layer (32) include silicon carbide (SiC), diamond-like carbon (DLC), silicon dioxide, silicon nitride, titanium oxide, titanium nitride, aluminum oxide, aluminum nitride, beryllium oxide, and tantalum oxide.